

NEPHROTOMY FOR THE RELIEF OF SUDDEN  
TOTAL SUPPRESSION OF URINE OCCUR-  
RING SOME TIME AFTER  
NEPHRECTOMY.<sup>1</sup>

[WITH THE REPORT OF A SUCCESSFUL CASE.]

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ATTENDING SURGEON TO THE GERMAN AND NEW YORK SKIN AND  
CANCER HOSPITALS.

IT has been my good fortune to perform so far extirpation of a diseased kidney six times (from October, 1890, to October, 1891), and not to have lost any of the patients. They are all in good health to-day and enjoy life. To go here over their histories would lead me too far, although every one of them contains some points of interest. One of the six cases, however, is so comparatively rare, and the result of prompt operative interference so extremely gratifying, that I think it worthy to be reported.

Miss R. G., 28 years of age, had always been healthy until 1890, when she was seized with a full, oppressing feeling and some pain in her right hypochondriac region. The pain increased for about two hours, then it suddenly ceased. Similar attacks recurred at intervals of six to eight weeks. She consulted her family physician, Dr. A. M. Lesser, of New York city; but the most careful examination failed to detect anything abnormal. There was no fever, feces were colored, urine normal. In December, 1890, a similar attack set in; this time, however, with considerable rise of temperature and general distress. Patient had to stay in bed for nearly one week. This time a small tumor could be felt below the border of the right ribs and close to the outer border of the right rectus muscle. It suddenly disappeared on the fifth day, leaving no trace behind. It could not be made out whether during these attacks the secretion of urine had been scarce, and whether coincident with the sudden improvement

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an abnormally large amount had been voided. The patient felt entirely well for nearly four weeks, when the trouble recurred in a more serious form for the third time, also with considerable fever, local, great sensitiveness and general malaise. An eminent physician was called in for consultation, who diagnosticated cholelithiasis, and advised, in view of the frequently recurring attacks, operative interference. When I saw the patient with Dr. Lesser, on January 30, 1891, I could not but concur with the two gentlemen's diagnosis. There was a tumor of about the size of a fist palpable below the border of the right ribs, between the anterior axillary and the median line, the greatest prominence corresponding to the outer border of the right rectus muscle. At this spot the hand, gently placed upon the abdominal wall, felt a soft crepitation, and created pain on pressure. Gentle bimanual palpation seemed to reveal a movable growth, which reached so close to the surface, however, and was so prominent anteriorly, also left the lumbar region of the same side so comparatively flat, that it did not impress me, at all as being of renal origin. Moreover, the patient had a yellowish-pale color and the urine was normal. I therefore abstained from inflating the colon or tapping the tumor, and was also inclined to attribute the symptoms to cholelithiasis, with one or more gall stones impacted in the cystic duct, which did not entirely block its lumen. Only now and then, so I calculated, did such stones entirely occlude the duct, and then the occlusion was due less to the size of the stone than to active contraction of the muscular coat of the duct around it. I advised the continuance of the treatment—small doses of morphine and ice-bag—and operation as soon as the inflammatory symptoms should have subsided. Twelve days later Dr. L. called on me, stating that the pain and fever had lessened, the size of the swelling was not materially increased, and that the patient was now ready for the operation for biliary calculus. I did not see the patient again until the day of the operation—February 12th—when bimanual palpation of the patient for the first time under ether led me to modify my original diagnosis, for now the tumor rather seemed to originate from the kidney than from the gall-bladder. Still, I opened the abdomen outside of the rectus muscle, and was not greatly surprised to find that the tumor was really retro-peritoneal. The pre-renal peritoneal fold was greatly hyperæmic, but there were no adhesions. The wound was sewed up at once with silk-worm gut. Two sutures in the middle of the incision, which corresponded to the greatest convexity of the tumor, had to be very snugly tied in order to bring the divided tissues into proper apposition. I purposely did not add a retro-peritoneal operation at once, as nephrectomy, not

only nephrotomy, might be indicated. And for this I wanted the patient to be properly prepared. I also wanted to perform cystoscopy first, in order to determine the excreting power of the other kidney. For if my aspirator should draw a transparent fluid from the swelling simple inspection of the urine would not suffice to enable me to estimate the condition of the companion gland. If, however, pus should be found cystoscopy would not be necessary, for I could at once infer that the opposite kidney was in good working order and excreting all the urine that was passed; for this was perfectly clear, which fact would point to an occlusion of the right ureter, preventing any descent of fluid from a purulent kidney.

Temperature was slightly raised in the first two days after the initial operation but did not exceed 100.5. Otherwise no reaction followed. The patient only complained of some pain in the line of incision. Stitches were removed on the eighth day, when the wound had healed by primary union throughout.

Twelve days later Dr. L. notified me that the middle of the wound had reopened and gave a continuous exit to a large amount of flocculent pus. Evidently the two silk worm gut sutures in the middle of the wound, which could only be tied with some difficulty at the time of the operation, had made a local pressure necrosis on the sac which, once started, was rendered complete by the presence of purulent fluid in the renal tumor. Meanwhile adhesions had formed within the prerenal fold, so that none of the pus entered the peritoneal cavity. No drainage tube was introduced. The wound was loosely covered with an antiseptic moist gauze dressing. As the symptoms due to distension of the kidney were now relieved by this spontaneous perforation of the sac, there was no urgency for immediate interference, and we used the next weeks to build up the patient. Cystoscopy was not now needed to test the functions of the opposite kidney, as all the secretions of the diseased gland passed through the fistulous opening in the abdomen, and the clear urine which continued to pass per urethram in normal quantity and quality, was evidently secreted by the kidney of the opposite side.

On March 19 nephrectomy was done with the help of an incision parallel to the border of the twelfth rib, to which later a short second one, passing from nearly its middle at right-angles, was added. I nicely succeeded in peeling off the sac from the opening in the abdominal wall as well as from the perirenal peritoneum which appeared extremely thin over the whole area. Then the ureter was first divided separately. As usual, this greatly facilitated the tying of the renal vessels, which was done with strong silk. The ligature was left long.

The kidney presented a number of cavities which were filled with thin purulent fluid, intermingled with thick flocculent coagulated material and peculiar round, semi-solid masses which impressed me as the organic skeleton of beginning stones which were not yet hardened by the deposit of salts. The pelvis of the kidney and the ureter were found to be filled with the same material. The latter was flushed out by irrigation as much as possible, yet a thin, soft rubber-bougie could not be pushed down into the bladder. Nor did I succeed in throwing warm boric water through the ureter by means of a hand syringe, although a good deal of pressure was used. After proper disinfection the cut in the muscles was closed by a number of cat-gut sutures, and the greatest part of the outer wound sewed up. A small drain was introduced through the abdominal fistula and the large irregular wound loosely packed with iodoform gauze. The patient stood the operation very nicely. Temperature and pulse remained normal. From the second day on she passed the normal amount of urine, which was as clear as before. The silk ligature which tied the pedicle was extracted four weeks after the operation. Recovery was progressing very favorably, the patient was already sitting up receiving company, etc., when on Sunday, April 26th, 38 days after the operation, and on the day menstruation was due, which however failed to set in, a short while after a normal micturition she felt a sudden dull pain in the "left" lumbar region, with an urgent desire to urinate. She tried to do so, but could not pass one drop. She waited a few minutes, and then tried again; not a drop. The doctor was sent for. He at once introduced a soft rubber-catheter. The bladder was empty. Hot drinks and digitalis were ordered. A restless night was passed, especially disturbed by the continuous lumbar pain. At an early visit on the next morning catheterization was again practiced. The bladder was still empty. Now the doctor conveyed the tidings to me. There was no doubt in my mind that the sudden absolute anuria was due to blocking of the ureter of the remaining kidney by some mechanical obstruction. I saw the patient at once. She was greatly depressed, as she was perfectly conscious, and being an intelligent person, understood what was at stake. We agreed to wait a short time, and in the meantime see whether we could with the help of very strong heart-stimulants, diuretic drugs, and the introduction of a large amount of fluid, increase the secretion of urine sufficiently to overcome the obstacle in the ureter. If we did not succeed nephrotomy would be necessary. To aid in the elimination of urea from the system cathartics were ordered. But as was feared would be the case, the anuria continued. Not one drop passed the blockade. Moreover, the lumbar pain increased, the pulse

became somewhat slower. Patient vomited once. On Wednesday, April 29th, at noon, 2½ days after the onset of the symptoms, I made the lumbar incision, with the patient in Lange's position.<sup>1</sup> As soon as the quadratus lumborum muscle had been divided a marked oedema of the subjacent tissues was noted. The perirenal adipose capsule was bluntly separated and the purplish red kidney appeared. It was not materially enlarged, but dense to the touch. A concrement could not be palpated nor did a needle plunged into the pelvis and the renal tissue at different points strike one. It was interesting however, to watch the many small fountains of arterial blood which were ejected out of every puncture-hole, synchronously with the pulse. I allowed these to spurt for a short while and thus reduce the immense arterial hyperæmia of the organ before I had them compressed. I now was obliged to add two short transverse incisions to the original longitudinal one, starting from both ends of the latter at a right-angle and penetrating the entire thickness of the erector trunci and sacro-lumbalis muscle (Bardenheuer's *Thuerfluegelschnitt*), in order to fully expose the upper portion of the ureter. Then the latter was longitudinally incised with a knife as low down as possible with the hope to be better enabled to extract a stone which might have become impacted in its course. As soon as the ureteral canal had been opened a mass of seropus, large shreds and coagulated pus and blood escaped. The same material absolutely corked the ureter for a distance of at least two inches. A thick probe pushed down with some force entered for perhaps one-half inch but then was stopped. It did not strike a stone. Evidently an abscess previously encapsulated in one of the pyramids had perforated into the pelvis of the kidney. A thin Nelaton-catheter was now introduced into the ureter downward alongside its wall, which was stretched with the help of two mouse-tooth forceps, and through it warm boric water forcibly injected by means of a hand syringe. Thus I succeeded, little by little, in washing out the debris backward towards the pelvis of the kidney. When the injected water returned clear the lower end of the catheter was cut off obliquely and pushed towards the bladder as far as possible and a number of syringes full of water flushed down into that viscus which had not been distended by a natural flow since three days. The patency of the ureter was thus re-established. That not the slightest obstacle was any more in the way of a normal kidney drainage was proved by a rubber-bongie which corresponded to the ureteral caliber and was passed down into the bladder in its entire length without any resistance. To guard as much

<sup>1</sup> ANNALS OF SURGERY, 1885. Vol. II., p. 286.

as possible against a return of this deadly occurrence, the wound in the ureter was still enlarged in an upward direction, thus dividing the pelvis of the kidney. The latter was found not to be materially enlarged but filled with the same material as the ureter had been. It was rapidly cleared by gentle irrigation. A curved steel-sound then introduced into the different calices failed to touch a stone. I was satisfied that the obstacle had been successfully removed. Now the wound was loosely filled with iodoform gauze, the rectangular skin muscle flap turned back and fastened to the opposite border by a few silk worm gut sutures which were again loosely tied. The incision in the pelvis of the kidney and the ureter had, of course, been left open.

The immediate as well as the remote result of this operation was gratifying in the extreme. The kidney at once resumed its work. At the evening of the operation dressing and bed covers were soaked with urine, on the second and third day somewhat less, as a great part of mine entered the bladder again and was voided per urethram. The gauze-tampon had no doubt become adherent to the wound of pelvis and ureter, and thus forced the urine to pass the natural passages. It was very tempting to leave the gauze in place for six or eight days, meanwhile allowing the wound in pelvis and ureter to heal by primary union. But after some deliberation it seemed better to me rather to adopt a slower but safer method. I extracted the gauze after three times twenty-four hours, to the great displeasure of the patient, as nearly the whole amount of urine at once made its way through the lumbar incision. Nevertheless the wound healed without any special reaction. A renal fistula established itself in the upper and lower right angle. These two fistulae were slowly drying up, towards the end of the fourth week after the operation, when the correctness of the after-treatment was clearly demonstrated.

One day before the next menstruation was due the urine, which had been clear and had for the most part passed the bladder, again suddenly made its exit through the lumbar opening in its entire quantity. Temperature rose to 101, pulse rate to 130. The catheter drew a few drops of heavily turbid water from the vesical cavity, but only once. Later on it was found empty. The former accident had recurred! A thin English catheter, bent according to the probable shape of the upper urinary passages, could be pushed in for several inches, and drew urine mixed with shreds. But at a certain distance it was stopped. Water injected through it returned murky. I deemed it to be the wisest to abstain from any further irrigation for the time being, as I could not see what I was doing and as the artificial safety-

valve guarded against a return of the anuria. I also thought it best to abstain, for that time at least, from trying to push a thin rubber bougie or catheter through the vesical mouth of and into the left ureter with the help of Boisseau du Rocher's cystoscope. I trusted in nature and time to dissolve the coagulated mass in the ureter and thus restore the former hopeful condition. But it took nature a good time to fulfill this hope. For eight weeks the kidney found its drain through the lumbar fistula. The patient was continuously wet and extremely annoyed and despondent, although large pads of moss nicely absorbed the fluid.

As the prognosis with reference to restoration of the normal flow of the urine was extremely uncertain, I designed a renal urinal, in the shape of a "bustle" as worn by the ladies a few years ago. A soft rubber-catheter, which drains the pelvis of the kidney and fits water-tight in the fistula, enters the bag at its upper end in such a way that it conveys the urine into it, but, by means of a valve prevents it from returning through its channel, if the patient should lean back in a chair for instance and thus compress the partially filled bag. A long tube with a stop-cock at its end is given off from the lower end of the bag and passing between the legs of the patient is fastened at some convenient spot in front. I have no doubt that this mechanism would have worked nicely. Happily we had no chance to use it, in this case at least, as in the seventh week, after the last clogging, a worm-like shred, 4 inches long, of a grayish-white color and the size of the ureter was expelled out of the latter's vesical opening and suddenly passed with a larger amount of urine, to the greatest delight of the patient. It took only a few days to dry out the upper fistula, but no persuasion from our side was needed to induce the patient to leave a drainage tube there in situ. It was no easy task to retain it in place. However it was forced to do so, and worn for nearly six months, although no urine ever passed it. The wound in the pelvis of the kidney had cicatrized, and the tube led down to it as a guide. Seven weeks ago, on December 12th, it slipped out by chance and could not be reintroduced on the following day.

To-day the wound is firmly closed and the patient in the best of health. She passes a normal amount of clear urine<sup>1</sup> and has no trouble whatever. Of course she is kept and keeps herself under close medical observation.

<sup>1</sup> I should mention that some turbidity of the urine was greatly improved during the latter part of last year by the administration of methyl-blue three times a day, 1½ gr. in capsule. Cfr. M. Einhorn, N. Y. Med. Record, 1891. Vol. 40, p. 643.

This case presents a number of interesting points:<sup>1</sup>

First, the strict indication for nephrotomy in a case of sudden anuria which occurs some time after nephrectomy and a period of uninterrupted recovery with the secretion of a satisfactory amount of urine. I should rather add the word "absolute" to sudden, as I have seen in my third case of nephrectomy that if the ureteral canal is not entirely blocked, the vis medicatrix naturæ can itself effect a cure. In that case cystoscopy, performed before nephrectomy, had demonstrated prolapse of the ureter on the other side and had therewith established the diagnosis of an irritative process in the remaining kidney, probably its pelvis.<sup>2</sup> On the thirty-ninth day after the operation, and after an equally long time of perfect comfort and undisturbed recovery, an abundant hæmaturia set in. But the blood and coagula, with a very scarce amount of urine, were voided per urethram; there was no "absolute" anuria. On the sixth day after the onset of this at times extremely critical trouble, the patient passed a stone, which at once put a pleasant conclusion to all further ailing. Only the very weak condition of the patient at that time prevented me from using the knife. Of course, I am now glad of this.

The answer *which operation* should be performed in such a case of sudden absolute anuria can only be the one—*Nephrotomy*. It will be best done in Lange's position, with an incision that permits free access to the pelvis and upper portion of the ureter for hands and eyes (lumbar longitudinal or angular incision or Bardenheuer's Thuerfluegelschnitt). Only if the obstruction would not be found at that portion of the urinary tract, certainly an exception, Bardenheuer's extra peritoneal exploratory incision or the incision of James Israel, of Berlin, proposed for a free access to the ureter in its entire length,<sup>3</sup> should be resorted to

<sup>1</sup> I want to emphasize at this spot that in my following remarks I exclude all reference to *tubercular disease* of the kidneys.

<sup>2</sup> Cfr. Author. The progress of cystoscopy in the last three years.—*N. Y. Med. Journal*. 1892. p. 173 and 174.

<sup>3</sup> *Ueber Nephrolithomie bei Anurie durch Nierensteineinklemmung; zugleich ein Beitrag zur Frage der reflektorischen Anurie.*—*Deutsche Med. Wochenschrift*. 1888. p. 7. This incision begins at the anterior border of the sacrolumbalis muscle and runs parallel to and about one inch apart from the twelfth rib to the latter's anterior end. From there it is carried obliquely downward near to the middle of the Poupart's ligament, where it turns to the middle line and ends at the outer border of the rectus muscle. The incision also is extraperitoneal.



besides and the cause searched for alongside the lower portion of the ureter.<sup>1</sup> We undoubtedly have a right to go ahead in this way in view of the certain death of the patient if no relief is obtained.

A further interesting point is the coincidence of the repeated blockings of the ureter with the time of the menstruation. No better proof could be given of the great influence exercised by menstruation upon all the abdominal viscera, especially the kidneys, and above all upon the left kidney, owing, perhaps, besides the nervous connections, which are common to both, to its close vascular connection with the left ovary through the ovarian vein. It is well known that the left ovarian vein generally empties into the renal vein, whereas the right ovarian vein empties into the vena cava.<sup>2</sup>

There are a great many more interesting points in the history of this case which might be discussed here. But it would lead me too far in view of the limited time given me to-day.

<sup>1</sup>Cfr. A. T. Cabot. A successful case of uretero-lithotomy for an impacted calculus. *Boston Medical and Surgical Journal*. 1890, p. 247.

<sup>2</sup>The possible dependence of these renal accidents upon the peculiar anatomical relations of the left ovarian vein was suggested to me by Dr. Mary P. Jacobi. Cf. F. Hyeth. Text-book on Anatomy, Vienna, 1875, p. 949; Lusk's System of Midwifery, p. 25.) The greater frequency of hyperemia of the left kidney has also been attributed to the fact that the left renal vein will at times pass behind the aorta. There evidently occurs an excessive hyperemia in the remaining kidney also immediately after nephrectomy. Its presence is demonstrated by the sudden change in the transparency of the urine if that remaining kidney had already been slightly affected. I have seen that in two of my cases, and could not explain the phenomenon in a different way. Certainly it has been observed by many who have done several nephrectomies that in a number of cases immediately after the one unhealthy kidney has been removed the urine which descends from it, probably only slightly affected, fellow, and which had formerly been found comparatively clear—with the help of cystoscopy, or after nephrotomy on the other side had been done—suddenly becomes very turbid, and presents an unusually heavy deposit after short standing. As I have seen it can take weeks or months before this turbidity lessens or disappears. In the majority of cases it does so, however, but slowly and gradually.

Schiede (*Meine Erfahrungen ueber Nieren exstirpationen. Separat-abdruck aus der Festschrift zur Eröffnung des Krankenhauses*, Hamburg, 1889, p. 45, foot-note) also mentions this necessarily present, suddenly increased arterial pressure in the remaining kidney after nephrectomy on the opposite side. He is inclined to look at it as the probable cause of the acute epithelial necrosis ("Coagulations-Nekrose") in the tubuli contorti of I and II order of the kidney, which has been found in a few instances after nephrectomy on microscopical examination of the remaining kidney, and to which the immediate fatal result of the operation evidently was due.

I only should still like to state that as far as a careful perusal of the literature has shown me, this is the second case on record where nephrotomy successfully cured sudden absolute anuria occurring some time after previous nephrectomy on the other side, and the fourth where total suppression of urine setting in some time after an operation on one diseased and later useless kidney (nephrectomy or nephrotomy) and evidently due to an occlusion of the ureter of its fellow, has been overcome by attacking this remaining gland, which alone attended to the secretion of urine.

On January 3, 1882, B. Bardenheuer of Koeln, Germany,<sup>1</sup> had opened a pyonephrosis on the left side in an unmarried lady twenty-seven years of age by the lumbar incision. The abscess was soon closing up and patient doing well; only a very scarce amount of clear urine was voided through the wound. On February 8, the thirty-sixth day after the operation, a sudden chill with total suppression of urine set in. The catheter found in the bladder only some mucus and a small stone. Pain in the back and the right lumbar region running down towards the bladder; nausea. On the following day the high fever, pain and absolute anuria continued; patient had twice vomited some greenish mucus. February 9, operation: Lumbar incision on the right side with an additional transverse cut at its lower end which runs backward. The kidney was shelled out of its adipose capsule. When this had been anteriorly done the finger reached the pelvis of the kidney and the upper end of the ureter. A small stone could be felt in the latter, which by palpation suddenly slipped back into the pelvis of the kidney. At the same moment a stream of urine was expelled through the urethra. The communication between kidney and bladder had been re-established. Now the stone was pressed back with two fingers of the left hand into the ureter, the latter incised with a knife, and a smooth longitudinal concrement of the size of a bean extracted. Four more small stones were removed from the renal pelvis. The wound in the ureter was closed by three silk-sutures, and the large wound loosely packed with antiseptic gauze. Soon afterwards the urine made its way through the wound. On the fourth

<sup>1</sup>O. Thelen, Nephrothotomie wegen Anurie. *Centralblatt für Chirurgie*, 1882, No. 12.

day after the operation chill and recurrent anuria. In narcosis the upper portion of the ureter is bluntly loosened for some distance, divided, and fastened in the lumbar wound. On March 12, the patient is without fever and slowly recovering.

In 1885, R. Clement Lucas, of London,<sup>1</sup> performed nephrolithotomy (following nephrectomy) for total suppression of urine on a female patient, thirty-six years of age. There was a strong family history of consumption. For seventeen years she had suffered from hæmaturia at intervals, and for nine or ten years this had been accompanied with pains on the right side of the abdomen; for seven years a tumor diagnosed as a floating kidney had been felt on this side. On July 14 nephrectomy was done for stone kidney on the right side. Uninterrupted recovery. On October 24, three and a half months after the operation, the patient was suddenly seized with most violent and agonizing pains in her back and left loin. The pain passed through the loin to the front of the abdomen and groin. She passed a little urine, but then all secretion stopped. Vomiting commenced soon, and was continued at intervals and whenever anything was taken. On the fifth day of anuria the patient became drowsy and weak, so that it was difficult to rouse her to obtain answers to questions. The pelvis of the left (remaining) kidney was opened and a conical stone extracted which had acted as a ball-valve to the top of the ureter. It was more than three-fourths of an inch in length and from three-eighths to five-eighths in diameter. Urine began to drop at once out of the wound as soon as the pelvis of the kidney was opened, but the pelvis was not found much dilated. For twelve days all urine was passed by the wound in the loin. Then one and a half ounce was passed with great pain from the bladder, and the quantity gradually increased. After the ninth day all the urine was voided by the natural passages. Ten weeks after the operation healing was complete. Five years later the patient was still living and enjoying the best of health.

In 1886 F. Lange, of New York City, reported a case of total suppression of urine in a man thirty years of age, which

<sup>1</sup> On a case of nephrolithotomy (following nephrectomy) for total suppression of urine lasting five days; complete recovery and good health five years after the operation.—*Proceedings of the Royal Med. and Chirg. Society, 1890.*

occurred eight weeks after nephrotomy on the left side had been performed for pyonephrosis and multiple stone, on October 2.<sup>1</sup> The first kidney, or, rather, the wall of the pyonephrotic sac, had to be left in place at that time. After a few weeks the discharge from the existing fistula was moderate, apparently very little admixture of urine. About November 25th patient commenced to complain of pain in the abdomen. Urine became scanty. Three days later only a few drops could be withdrawn from the bladder. Nothing had been passed within the last twenty-four hours. On the morning of the 29th abdomen tympanitic, very painful; principal pain, however, was located in the right side, while the first operation had been done on the left. Pulse weak; dyspnoea; beginning collapse. Not a drop of urine in the bladder. Occlusion of the right ureter was diagnosed and nephrotomy at once done on this side. The fat from the posterior aspect of the kidney having been removed, an abscess was found in its substance and quite near the insertion of the pelvis. It was near perforation. Being opened, the finger passed without resistance into the pelvis. In withdrawing it a great quantity of bloody urine escaped. A long, slender, thin-bladed dressing forceps pushed into the first part of the ureter soon met with a resistance without having the touch of a stone. The obstruction was found to be a whitish-gray plug, about the size of the end phalanx of the small finger, somewhat flattened and conical, resistant but brittle and apparently consisting of an old fibrinous clot, into which watery substance and numerous gravel-like concretions were imbedded. It was washed out by means of a hand syringe. On the first day after the operation three quarts of a cloudy, slightly bloody urine had been discharged. Almost all the urine seemed to pass by the normal channel. The patient made an uninterrupted recovery. He is, as Dr. Lange kindly informed me, still living and able to work. He has a fistula in his left loin, which only discharges a few drops of pus, no urine, and probably leads down to remnants of stone. The fact that during the occlusion of the right ureter no urine was found in the bladder is conclusive proof that the left kidney had already at that time entirely lost its significance as a urine secreting organ.

<sup>1</sup> Two cases of renal surgery. *The Medical News*. 1886. p. 69.

Two questions are still strongly presenting themselves to the mind of the careful observer :

1. Is not the suppression of urine in a few of those happily rare cases where fatal, absolute anuria sets in and continues "immediately" after nephrectomy, also due to a similar mechanical cause, provided the cystoscope had previously demonstrated the existence of a working kidney on the side opposite to the seat of disease?

It is well known that a number of deaths caused by acute uraemia after the removal of one kidney have been reported. If a thorough postmortem examination was not made or could not be obtained, they were mostly explained as due to a nervous reflex-anuria.<sup>1</sup>

2. If this sudden total suppression of urine sets in and continues "immediately" after the removal of one kidney in cases where,

- a. the retroperitoneal incision had been made,
- b. strong antiseptic solutions (sublimat and carbolic) were not used in the wound,
- c. shock and great loss of blood had not been present at the time of nor after the operation,
- d. the cystoscope had shown a well working kidney on the opposite side before the operation, and
- e. strong and continuous stimulation failed to work;

And if then a deep and protracted chloroform-narcosis does not restore the renal function, thus making a nervous (reflex) origin of the anuria improbable:<sup>2</sup>

Is not nephrotomy on the remaining side then indicated?

If nothing is done the patient will certainly die; if an obstruction is found and removed, there is hope for recovery.

<sup>1</sup> That such a nervous reflex-anuria, dependent upon a mechanical irritation on the one side, really exists, is nicely demonstrated by the case of James Israel, *Deutsche Med. Wochenschrift*, 1., c. Man, 49 y., suffering for years from gout and right renal colic. November 15, 1886, left renal colic; Nov. 16, total suppression of urine. Nov. 21, lumbar incision on the left side. Stone found in the pelvis of the kidney, entering and occluding the ureter; extracted. A second stone is impacted in the ureter, 10 centim. lower down. It is pushed up into the renal pelvis with two fingers from outside of the ureteral canal, and then extracted through the same wound. Both kidneys at once resume their work, as could be proved by the different result of qualitative analysis of that urine which passed the bladder and that which was discharged through the wound.

<sup>2</sup> J. Israel, l. c., p. 6.

But suppose no mechanical obstacle were found in the pelvis of the kidney nor in the ureter!

Then an artificial direct depletion of the organ could perhaps still prove useful. It would reduce the hyperæmia, which followed in the remaining kidney upon the ligature of the renal blood vessels on the operated side.<sup>1</sup> (If the acute coagulation-necrosis of the epithelial cells in the tubuli contorti has taken place such a procedure will be useless. Still the puncture and direct depletion will not aggravate the trouble).

As far as I could ascertain, nephrotomy on the remaining side has never been performed yet in cases of this kind.

I then would not let a patient of this kind die without having tried with the knife to save his life. If there were the slightest hope that the patient could stand further operative interference I would cut down on the kidney and satisfy myself whether drainage from the kidney were free. And if everything there would be found in normal shape I would puncture the kidney in many different spots with a needle, allowing the small wounds to bleed freely. I would then only loosely pack the wound and take every care to avoid pressure from outside.

Reviewing this case,<sup>2</sup> the following conclusions may perhaps with propriety be drawn:

1. Before nephrectomy cystoscopy should, if possible, be performed to prove the presence of a working opposite kidney.

This will be generally unnecessary, if a renal fistula exists on the diseased side and the urine, voided per urethram, is clear and sufficient in quantity. But even in these cases cystoscopy will be a desirable procedure for making a more definite prognosis.

2. If the cystoscope had demonstrated the presence of a working opposite kidney, and if then absolute anuria suddenly

<sup>1</sup> Of course any increase in the renal arterial pressure will, under ordinary circumstances, increase the secretion of urine. But may not the sudden *excessive* hyperæmia enlarge the arterial capillaries in the glomeruli to such an extent as to compress the vas efferens, which begins in the centre of the glomerulus? The scarce amount of urine in the first one to two times, twenty-four hours after every nephrectomy, could be in part dependent upon this condition. The organism generally quickly regulates such circulatory disturbances. For different reasons it may now and then be unable to do so.

<sup>2</sup> And with reference to conclusions 3, 4 and 5 also reviewing my other five cases of nephrectomy.

sets in some time after nephrectomy and a period of uninterrupted recovery with the secretion of a satisfactory amount of urine, the cause must be a mechanical one. Nephrotomy on the remaining side is then indicated as the only means to save the patient's life.

3. Immediately after nephrectomy there is, in all probability, an acute hyperæmia of the opposite kidney. This hyperæmia also frequently occurs in the female sex, especially in the left kidney, at the time of the menstrual period, but probably to a much less extent.

4. Such hyperæmia may suddenly increase an incipient or hitherto entirely latent disease in this remaining kidney. It can even cause the perforation into the pelvis of the kidney of an abscess previously encapsulated in one of the pyramids.

5. Such an aggravation of disease in the remaining kidney may be repeated at a number of menstruations, but is, in the majority of cases, of a passing, not of a permanent character. After such attacks (cf 4) the remaining kidney often shows an improved condition.

## EDITORIAL ARTICLE.

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### PLICQUE ON HYSTERICAL COXALGIA.<sup>1</sup>

Muscular contractions form a most important symptom in joint-affections. Difficulty in diagnosis is therefore apt to occur when contractions take place without any joint-affection.

We meet these difficulties particularly in the knee-joint and the hip joint.

Brodie has first described this affection, simulating a joint-disease, under the name: hysterical coxalgia. He states, in regard to its frequency, that four-fifths of women in the upper classes, who are supposed to suffer from an arthritis, are simply suffering from hysteria. Paget states that one-fifth of all cases in the lower classes, who are supposed to suffer from a joint-affection, are in reality suffering from this disease. The disease is, therefore, quite frequent, and it is of importance to diagnose it correctly, as both the prognosis and the treatment are perfectly different from those of an arthritis.

1. A hysterical coxalgia occurs always very suddenly. The patient, frequently a young girl, complains of severe pains in the hip after a light injury or a fall, over-exertion or mental disturbance. She can either not walk at all or limps excessively. The extremity is soon found in an abnormal position, most frequently in adduction and rotation inwards, later followed particularly by flexion. The least pressure against the hips and the smallest motion occasion loud screams.

This condition may last for weeks, months, yes, years, without occurrence of local symptoms as infiltration, suppuration or atrophy. The general condition may continue good, although the patient keeps absolutely quiet. Although the disease may last very long, it may terminate in recovery. All symptoms may disappear without leaving a trace, just as suddenly as they occurred. As it is difficult to give a

<sup>1</sup>Gazette des hôpitaux, 1891, No. 66.



correct description of hysteria the author pays particular attention to the symptoms.

The sudden and violent coxalgia is the most characteristic symptom, reaching its greatest intensity immediately, as it takes a very short time, a few days, before all the symptoms which we find in a tuberculous coxitis of months' duration, are present.

The existing causes are many and varied; mental impressions, bad luck, different affections of the nervous system and genital organs, slight traumata, over-exertion. Imitation is occasionally of some importance.

Paget states that in one case the brothers of the patient suffered from a progressed coxitis. The pain in hysterical coxalgia is quite characteristic.

It is almost always a sudden, violent, excessive pain, different from the deep-seated, yet bearable pain in tuberculous coxitis.

The greatest tenderness for pressure is frequently a little above lig. Fallopii. It is characteristic that the most superficial pressure, as a pinching of the skin, is able to provoke the most violent screams (Brodie's symptom).

Attempts of passive motions will produce as characteristic pains. A patient with hysterical coxalgia will complain of pain the moment we attempt the least motion, while in real arthritis such motions surely are impossible and while the pain first occurs, when motions are carried to excess.

Neither have patients with hysterical coxalgia painful muscular contractions during sleep, in the diseased extremity, as is found in coxitis. The abnormal positions of the limb may be similar to those of coxitis, yet vary somewhat. The contractions are sometimes excessive, so that the knee, for instance, is pressed against the abdomen. At other times the abnormal position varies from day to day. It is characteristic, too, that contractions rarely are limited to the hip; both the knee and ankle may show similar contractions. The whole contracted extremity may then appear perfectly rigid, almost as hard as wood.

The limp has no particular value as a diagnostic symptom, as the patients generally keep their beds and assume that it is impossible for

them to walk. If we succeed in making them attempt it we will discover the same exaggeration in their limping as in their other symptoms. The direct examination of the joint is usually very difficult on account of the patient's scream at every touch; the examination will only give negative results. There is neither infiltration nor increased local temperature nor swelling of the glands.

A slight infiltration of the skin is occasionally found in cases in which for some time local remedies, as fly blisters and tincture of iodine, have been used.

No matter how long the disease has lasted, we never find subluxation or crepitus in the joint or muscular atrophy.

The extremity may, perhaps, grow a little thinner on account of the long-continued immobilization, but real atrophy is not found. We may find other disturbances, such as anesthesia, locally diminished temperature and cyanosis; but they are then not limited to the hip, but are found in the whole extremity.

The lack of the usual symptoms of coxitis forms the basis for the diagnosis of the hysterical coxalgia. Some deviations may be found. In very old and long-lasting cases trophic disturbances are occasionally seen; also atrophy, and even muscular contractions, fatty degeneration of the bones and changes in the articular surfaces of the joint-ends. Some of these cases may, perhaps, have been joint affections, as found in chronic myelitis. We have in narcosis a valuable means of making sure that no real joint affection is present.

The muscular contractions cease in the narcosis, and it is thus easy to show that all motions are perfectly free and that there is neither infiltration of the soft parts, nor crepitus, nor subluxation. Exceptionally only might we find this joint intact in a somewhat progressed tubercular coxitis.

Even under anæsthesia we will find, as a rule, some muscular contraction, particularly in forced abduction and some deep infiltration.

Paget and Chareot have mentioned two less obvious diagnostical signs.

The muscular contractions reoccur much quicker after the narcosis in real arthritis than in hysterical coxalgia.

The deep-seated pain produced by percussion of the trochanter major in real coxitis reoccurs as soon as the narcosis disappears, but is absent in hysterical coxalgia even when the cutaneous hyperæsthesia has returned.

The examination of the general condition of the patient is of great importance.

The patient has sometimes all the symptoms of neurasthenia, although we must not expect always to find convulsions, and hysteria, etc.

It is often impossible to find any signs of hysteria in the previous history on the present symptoms.

Paget has mentioned a number of points which may help to unveil a marked neurasthenia. Now we find them in the family history as hysteria, epilepsy, alcoholism and particularly mental disturbances; then in certain traits of character, as a too lively susceptibility to sentiments of joy or pain, then in a more or less abnormally developed intelligence.

Even their behavior may be of importance. Just as the hypochondriacs, they are taken up with their ailments, but, instead of the mental depression of the hypochondriacs, we find them rather satisfied and proud of being the object of general interest. At first they seem to stand their sufferings with real courage, but their energy disappears as soon as the question of standing the pain of an examination comes up.

This weakness for everything relating to their disease is contrary to the stoicism in patients with rheumatic and tuberculous affections.

It is also of importance to pay attention to other organic affections as metritis, obstipation, dyspepsia. Such a trouble may give indications for treatment. Hysterical coxalgia may last for years, and will then seriously affect the general health on account of the continuous confinement to bed. A weakness of the extremity, due to degenerations of muscles and bones, may then appear. Recovery occurs often very suddenly, even in cases which have lasted for a long time.

The contractions may disappear under the influence of some mental impression on account of a treatment which gains the confidence of the patient. Generally, it is true, the symptoms disappear only to be

followed by other hysterical symptoms. The recovery is not by any means permanent.

The hysterical coxalgia is par excellence a disease with intermissions, remissions and relapses. The slightest trauma is apt to produce relapse. It is, therefore, necessary with great care to protect the patients against contusions and falls for a time. Pengnietz thinks that continued increase of patella-reflex indicates that a relapse is probable.

2. The diagnosis of hysterical coxalgia offers difficulties in three directions:

*First.* It is necessary to exclude a possible arthritis of tuberculous, rheumatic or gonorrhœal origin. By a careful consideration of the above-mentioned symptoms we will be able to overcome this difficulty.

*Second.* The diagnosis becomes more difficult if a hysterical patient should get a real arthritis. This arthritis would present special traits, be a mixture of a real joint-affection with nervous contractions, which differ from those of pure hysteria, because they have a real cause, while they differ from the contractions of a common arthritis by their excess.

*Third.* It is necessary to be on guard for simulation, as in other hysterical affections, which may present great diagnostical difficulties.

A great many affections of the hip-joint and its surroundings may simulate hysterical coxalgia.

Rheumatic and gonorrhœal coxitis ought to be mentioned first on account of this very acute appearance.

The local temperature gives the best diagnostical point in regard to differential diagnosis. An acute arthritis, which appeared with such severe pains as a hysterical coxalgia, would surely show an increased local temperature. The hysterical coxalgia shows no such increase.

The presence of fever is an important diagnostical symptom. Hysterical patients may, to be sure, be able to produce slight chills and slight increase of temperature, but they are not permanent and quite insignificant, and, as a rule, there is no increase of temperature in hysterical coxalgia. As the disease protracts, or, when it excep-

tionally develops slowly, the differential diagnosis with a tuberculous coxitis may offer difficulties.

In cases of doubt we must examine under narcosis. Congenital dislocation of the hip has in reality no symptom in common with hysterical coxalgia, but the author maintains that an inflammation occasionally may occur in such a dislocated joint and that the usual symptoms of arthritis may be of such an acute and violent character that they may remind one of hysteria. An exact examination will quickly clear up the diagnosis.

The mixed forms, such as hysteria complicated with a real arthritis, present the most difficulties in regard to diagnosis.

The real arthritis may perhaps only be commencing and not so far present any local symptoms, but it may nevertheless, on account of the patient's mentally excited condition, produce muscular contractions and exclamations of pain. Theoretically these may only be considered symptoms of hysteria, but practically it is of the greatest importance not to once look that the patient's complaints have as a foundation an anatomical affection. It is easy to give a wrong prognosis or institute a treatment which may have serious results. Paget advises in such cases to avoid the name hysteria, rather using vague expressions till the diagnosis is sure.

The diagnosis ought to be still more reserved, if there is suspicion of simulation. Simulation plays an important role in coxalgia, as in other hysterical affections. In hysterical coxalgia, the result of some slight injury, and in which there may come up a question of responsibility and damages, the hysterical symptoms are rarely devoid of some calculation.

A simulation carried to excess may, on the other hand, point to hysteria. The contractions, at first voluntary, may then later become real.

Suspicion of simulation, therefore, may be justified, but it is difficult, on account of the mixture of real and imaginary symptoms in hysteria, to prove that we have a case of pure and simple simulation. Simulation on this point—except, perhaps, in legal complications—is, to be sure, rare, and we must remember that patients are much more apt to try to hide a coxalgia than to simulate one.

A moral treatment is of the greatest importance in the treatment of hysterical coxalgia. The prospect of recovery depends largely on the confidence the physician is able to inspire in the patient, and upon the surroundings.

A general rule for the moral treatment cannot be given; it acts in reality by indirect suggestion only. The author is more reserved in regard to treatment by direct suggestion, by which probably the local affection might be improved, but with the danger of making the nervous condition worse. Paget has at a time, when treatment by suggestion was unknown, spoken about the danger of exposing such nervous individuals to the influence of a too firm or brutal will. The results of such a treatment may be as serious as the disease itself.

The methods of local treatment have been numerous.

By degree electricity, magnetism, metallo-therapy, inunctions with belladonna ointment or subcutaneous injections of atropia, with massage, have been used.

Sometimes these remedies have given excellent results, sometimes they have completely failed. The different apparatus for immobilization are often not tolerated. It is necessary to apply them under narcosis and to take in the whole extremity, or contractions may occur in the knee or ankle. If applied they ought to be used for 18 days at least, and motions then commenced very gradually. Chareot thinks such apparatus do more harm than good.

If the diagnosis is sure, Brodie, and most others with him, recommends to avoid all immobilization and rest in bed, and to try to make the patient walk a little every day. If she refuses, electricity, massage and passive motions may be tried. If there is the slightest suspicion that a real arthritis is the cause of the complaint, complete rest becomes absolutely necessary. We possess in the permanent extension by weights a method of great benefit in both diseases, and it ought, therefore, to be our choice in hysterical coxalgia. It is most beneficial to commence with a smaller weight, and not increase beyond five or six pounds. The pain disappears first, the abnormal positions straighten out little by little, and the patient will gradually be able to sit up and walk around a little during the day; even then it is advisable to continue the extension during the night.

Surgical interference has usually been the result of a wrong diagnosis. Boeckel has in one case of a year's duration resected the joint ; he found pronounced atrophy of bone and cartilage, and the result was not very encouraging. A general tonic treatment with iron, quinine and good food is, of course, of great importance.

The author warns against the use of narcotics, even if the pains are said to be severe. The treatment of an organic trouble causing the disease has in many cases quickly cured the coxalgia.

H. MYNTER.

## INDEX OF SURGICAL PROGRESS.

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### GENERAL SURGERY.

**I. Conditions Underlying the Infection of Wounds.**  
By WILLIAM H. WELCH, M.D., Baltimore. The number of different species of bacteria, particularly of bacilli, revealed by the systematic study of traumatic infections is much greater than was formerly supposed. The pyogenic staphylococci and streptococci, however, are by far the most common causes of suppurative affections of wounds.

A coccus, which may appropriately be called the staphylococcus epidermidis albus, is a nearly, if not quite, constant inhabitant of the epidermis, lying both superficially and also deeper than can be reached by present methods of disinfections of the skin. This coccus is found frequently in aseptic wounds. It may be the cause of disturbances, usually of a relatively slight degree, in the healing of the wound, especially when drainage tubes are inserted. It is the most common cause of stitch abscesses in wounds treated antiseptically or aseptically.

The bacillus coli communis is a frequent invader of various organs of the body in cases with ulcerative or other lesions of the intestinal mucous membrane. In such cases its presence is usually unattended by evidence of pathogenic action, but this bacillus may be associated with inflammatory affections of wounds, with peritonitis, and with abscesses.

There are many reasons for believing that the process of suppuration serves a useful purpose in combating bacteria and preventing their invasion of the circulating fluids and the tissues of the body.

The pyogenic bacteria set up suppuration by means of chemical substances produced by them and entering into their composition. The studies of chemotaxis have shed much light upon the mode of action of these substances.



The effects produced in the animal body by the pyogenic cocci are determined by many factors relating to the infectious agents and to the individual exposed to infection. There are differences in these effects depending upon the species of animal, upon the tissues and part of the body infected, upon the readiness of absorption from the infected part; upon the source, the number and the virulence of the organisms; upon the nature and amount of the toxic substances accompanying and produced by the bacteria, upon general predisposing conditions of the body, and upon local conditions in a wound such as the presence of foreign bodies, of pathological products, of dead spaces, of bruised, necrotic, and strangulated tissues.

Infectious agents, as they occur under natural conditions, may possess greater virulence than the same bacteria in artificial cultures, and this probably depends upon accompanying toxic substances.

Results of experiments on animals explain clinical experience concerning the aseptic healing of wounds by the so-called organization of a blood-clot.

The tissues of a wound should be handled so as to interfere as little as possible with their vital capacity to overcome bacteria.

Although the greatest danger of infection of a wound from without is by direct contact, nevertheless the possibility of infection from the air should not be disregarded.

Auto-infection may take place by the entrance into the circulation and tissues of pyogenic bacteria from the alimentary and the genital canals, but there is no evidence that this can occur when these tracts are in a healthy condition. Moreover, with the requisite lesions of these tracts other general and local conditions of the body are important, if not essential, factors in bringing about pyogenic or septic infection.

The presence in the circulating blood and tissues of certain chemical products of pyogenic and of putrefactive bacteria, as well as that of various other injurious substances, favors the growth in wounds of septic and pyogenic bacteria, both of those which may be carried to the part by the circulating fluids and those which may enter from outside of the body.

Whenever we have been able to demonstrate the presence in wounds in human beings of the *staphylococcus pyogenes aureus* or of the *streptococcus pyogenes* the wound either was suppurating or subsequently it suppurated.

Only in the minority of cases were the aseptic wounds which we examined free from bacteria. By far the most common organism in these wounds pursuing an aseptic course is the *staphylococcus epidermidis albus*, which without the presence of a 'drainage-tube or other foreign body rarely causes suppuration in the wound. .

The presence of microorganisms in layers of the epidermis deeper than can be reached by existing methods of cutaneous disinfection points to the skin, especially to that of the patient, as a source of infection to be carefully guarded against.

The substitution so far as possible of subcutaneous for cutaneous sutures lessens the chances of infection from this source, and particularly those of stitch abscesses.

Wherever applicable in surgical antisepsis, disinfection by heat should be preferred to that by chemical agents.

Previous experiments to determine the efficacy of disinfection of the skin by corrosive sublimate are vitiated to a considerable extent by the failure to precipitate the mercury with ammonium sulphide before testing by culture methods its germicidal power on the skin.

The mercury remains for days and weeks intimately incorporated with the epidermis.

Epidermal bacteria not killed by the sublimate may be brought into such relation with it that they will not grow in ordinary culture media until the mercury is precipitated by ammonium sulphide, and such bacteria may remain for days and weeks in the epidermis.

The results of Fürbringer's method of disinfection of the skin are found to be less favorable when they are tested after precipitation of the mercury with ammonium sulphide than without this precaution.

The best results in cutaneous disinfection we obtained by a method in which permanganate of potash followed by oxalic acid plays the principal disinfectant rôle,<sup>1</sup> as in the following method :

1. The nails are kept short and clean.

2. The hands are washed thoroughly for several minutes with soap and water, the water being as warm as can be comfortably borne, and being frequently changed. A brush, sterilized by steam, is used. The excess of soap is washed off with water.

3. The hands are immersed for one or two minutes in a warm saturated solution of permanganate of potash, and are rubbed over thoroughly with a sterilized swab.

4. They are then placed in a warm saturated solution of oxalic acid, where they remain until complete decolorization of the permanganate occurs.

5. They are then washed off with sterilized salt solution or water.

6. They are immersed for two minutes in sublimate solution, 1-500.

—*The American Journal of Medical Sciences*, Nov., 1891.

**II. On Bromide of Ethyl Narcosis.** By DR. ALEXANDER L. EBERMANN (St. Petersburg, Russia). At a recent meeting of the Pirogovian Chirurgical Society Dr. Ebermann made an interesting communication on the subject, based on 75 cases of his own. The series include 9 cases of opening abscesses, 1 tenotomy, 4 canterization of hemorrhoids, 17 excision of tumors (10 benign, 7 malignant), 19 scraping out tubercular foci, ulcers, fistulas and rhinos-cleroma, 9 trepanations, 3 evulsion of in-growing toe-nails, 2 resection joints (of the elbow and knee), 1 reduction of inveterate luxation of the humerus, etc. The patients' ages varied from 8 to 70. Merck's preparation was invariably employed, the quantity of the drug administered oscillating in individual cases between 10 and 70 grammes. Esmarch's mask was always used, being, as a rule, kept at some distance from the patient's face; in some cases a piece of wax paper, with cotton wool, was placed into, and one-half of the quantity of the drug required poured over the wool. The duration of the narcosis varied from two to twenty minutes. Shortly after the commencement of inhalation the patient was asked: "Are you asleep (*Spiest*)?" and as soon as he or she answered, "I am (*Splue*)," the operation was proceeded with. In 65 out of 75 cases the operation was successfully completed under bromide of ethyl alone, but in the remaining 10 cases chloroform was

subsequently resorted to. Of the 10, in two it was intended to do so from outset ("to save time"), while in one the substitution became necessary in consequence of a complete failure of the bromide (the patient remaining awake in spite of his having inhaled as many as 60 grammes); in 3 the operations proved to require a much longer time than it had been expected, and in 4 the bromide was substituted by chloroform on account of its inducing a most violent excitement. On the whole, of accessory effects, a more or less intense excitation was observed in 8 patients; nausea and vomiting in 11, and dyspnoea in 11. In none of the 75 cases, however, any alarming symptoms ever occurred. The author's general conclusions were to the effect that 1, bromide of ethyl was a valuable anæsthetic agent both in minor and major operations, and 2, it presented certain advantages over chloroform, such as a rapid advent of analgesia, a literally quick course of narcosis, with a but short-lasting initial excitement, and a good consecutive subjective state of the patient. In the course of a discussion which has followed Dr. Ebermann's paper, Dr. Al. A. Troianoff has stated that, 1. according to his experience, the bromide is actually an invaluable anæsthetic, but suitable solely for minor operations, requiring not more than 10 minutes' time. 2. As regards major operations, the bromide is, out of any comparison, inferior to chloroform, since the latter is totally void of danger, while bromide, in corresponding large doses, can produce asphyxia." 3. In cases of reduction of luxations chloroform should also be preferred to the bromide, since the latter fails to induce a sufficient muscular relaxation. 4. The bromide is by no means free from disagreeable after-effects; on the contrary, the narcosis is frequently followed by nausea and headache. 5. In cases of minor operations it is sufficient to use from 10 to 15 grammes of the bromide, pouring the whole quantity over the mask. The narcosis ensuing in 1½ or two minutes and analgesia persisting for about 10 minutes, keeping up the narcosis by adding new portions of the drug, should be regarded as a dangerous practice. At all events, the maximum total dose which can be administered with safety does not surpass 30 or 40 grammes. Dr. Lev S. Ginsburg has said that: 1. Bromide of ethyl narcosis does not differ in any essential particular from a chloroform one, either of the agents producing anal-

gesia and muscular relaxation. 2. The bromide can be successfully employed in major operations, as well as in cases of reduction of luxation. 3. The best criterion in regard to the advent of complete analgesia is constituted by Frisient. 4. As regards the influence on the vascular system, the bromide undoubtedly gives rise to a considerable fall of the arterial tension. Professor Eageny V. Pavloff has supported Drs. Ebermann's and Ginsburg's views, that the bromide is a safe agent and can be employed in cases of reduction of luxation and major operations. His experience has also showed that, after a bromide of ethyl narcosis the patient's general condition is much better than after a chloroform one. The speaker emphatically recommended a preliminary bromide of ethyl narcosis, followed by chloroform inhalations, which combination secures a substantial gain in time. [Some papers on bromide of ethyl may be also found in *Annals of Surgery*, 1890, March, pp. 219 and 220, and November, p. 551.]—*Pract*, 1891, No. 41, p. 932.

VALERIUS IDELSON (Berne).

## OPERATIVE SURGERY.

**I. On the Choice of Points for Amputation of the Lower Limbs from the Standpoint of Securing Stumps Most Favorable for the After Use of Artificial Limbs.** By MR. CHARLES TRUAX (Chicago). The conditions essential to a favorable stump for locomotion are a conical form without sharp corners or protuberances, with cicatrix underneath and preferably at the posterior margin, and length enough to obtain a good bearing in the stump socket. If these requirements are complied with, and the stump possesses the necessary firmness to bear the contact with the socket, the patient, if properly fitted, will be enabled to operate the artificial part of the member in such unison with the natural portion that detection of the former is almost if not quite impossible.

Where a stump is so formed as necessitates its bearing a portion of the weight of the patient at its end it is usually a source of annoyance, because it not only forms an inferior means of support, but is

constantly liable from the slightest causes to pain, irritation and ulceration.

In amputations of the femur the value of the stump to the patient increases with its length until a point is reached within three inches of the lower end of the bone. Here, at this point of three inches above the knee-joint, is the point of election, which should be adopted if circumstances are favorable.

In amputations of the tibia the value of the stump also increases with its length, and the same rule should be applied as in the case of the femur, excepting that the point of election should be the juncture of the lower and middle thirds. Here the amount of surface exposed to the lateral pressure of the socket is not of as much importance as in thigh stumps, because the weight of the body is principally carried by the condyles of the head of the tibia. These afford a firm, unyielding surface which, when once well fitted with a socket, will, if necessary, carry the whole weight of the patient. It is, however, preferable to secure the advantages of a natural, conical-shaped stump by amputating below the calf, and thus increasing the bearing surface, and removing a part of the pressure from the head of the bone. Further, the amount of leverage increases with the length of the stump, so that if the operation be performed at the point indicated, the patient will have better control over the artificial limb than if the operation be at a higher point.

This point of election not only gives to the patient every benefit offered by amputations at or near the ankle, but it enables the instrument maker to display his mechanical ability to the greatest possible advantage.

Following injuries involving the middle and upper thirds of the tibia, many works on surgery advocate the leaving of short tibial stumps, that the patient may be provided with what are known as knee-bearing legs, or those in which the weight is taken on the anterior aspect of the flexed limb. It seems almost unnecessary to present arguments to demonstrate that such limbs would be clumsy appliances at best, owing to the imperfect connection between the natural and artificial portions. Short tibial stumps usually contract to a greater or lesser extent, and for this reason should be avoided. I

would say that an amputation should not be performed within three inches of the joint. In cases where only from three to four inches of the tibia can be preserved, and there be no danger from inflammation in the joint, it would seem better, from my standpoint, to excise the remaining portion of the fibula. Its presence is of no benefit to the patient, while its removal facilitates the forming of a more conical stump, and insures a greater degree of firmness therein. Several cases have come to my knowledge, where the pressure of an artificial limb socket on the remaining fragment of fibula has proven a constant source of pain and discomfort, and one or two cases of ulceration I believe were due to this cause.

The fundamental principle that forms the basis for the new theory is the fact that the successful operation of a limb, whether natural or artificial, depends largely on the action of its joints. Therefore, unless the surgeon amputates at points that not only leave the natural joint intact, but provide below it sufficient leverage to swing the substituted portion, he will interpose obstacles in the way of the instrument maker that will prevent the construction of the best form of appliance.

To amputate through the knee or ankle-joint is to assume the position of the dog in the manger, for the remaining structures occupying the half of the joint are of no use to either the surgeon or patient, but take up room that should be used for joint mechanism. The natural half of a joint remaining after a knee or ankle disarticulation is of no more use to the patient than the odd half of a pair of shears, for only in a limited number of cases can much, if any, weight be borne by the ends of the bones.

It required only a brief experience in the construction of artificial limbs to satisfactorily demonstrate to my mind that patients in large numbers are being crippled annually by tarsal and tibio-tarsal amputations, but it was with considerable hesitancy, even after an extensive investigation, that I first dared to advise the entire abandonment of all operations of this class.

Patients who have suffered amputations of this class, after being provided with artificial substitutes, rarely walk as well (and to walk

at all requires the outlay of more labor) as where the amputation has been performed through the tibia.

Owing to the unsatisfactory service resulting from the use of artificial arms and hands, the surgeon is not warranted in adopting radical methods in treating injuries or disease in the upper extremities. On the contrary, he should exhaust the last resources of conservative surgery and save all of the parts possible.—*Journal American Medical Association, November 28, 1891.*

**II. Operation for Exposure of the Branches of the Third Division of the Trigeminal Nerve in the Zygomatic Fossa.** By V. HORSLEY, F.R.C.S. (London). The skin having been first shaved and washed with soap and water, is covered for twenty-four hours with a dressing of lint soaked in 1 in 30 carbolic solution. Just before the operation it is finally sponged with warm lotion, and the external auditory meatus, after being thoroughly cleaned out, is rendered more antiseptic by the insufflation of powdered boracic acid, or is packed with antiseptic wool or soft gauze. The patient is anesthetized, preferably with chloroform, so as to diminish facial congestion. An incision is then made, beginning above the upper border of the root of the zygoma and carried through the skin and superficial layer of fat only, straight down the front of the tragus and following the contour of the jaw behind the angle forward just below the lower border of the body as far as the facial artery. The triangular flap just marked out is then raised, the knife cutting the layer of fat and superficial fascia which lies immediately over the deep masseteric fascia. In this latter ramify the branches of the facial nerve. The flap is to be drawn forwards and upwards with suitable traction until the anterior border of the masseter is reached, and the edge of the parotid and the lower border of Stenson's duct are clearly defined. The degree to which the parotid gland covers the masseter muscle varies, of course, in different individuals, but this is of no consequence. What does matter is that sometimes collecting tubules of the lower lobules run up toward Stenson's duct just within the anterior border of the gland, covered only by a thin layer of the parotid fascia. Unless care be taken in defining the edge of the parotid or the fascia



left uninjured in the next step of the operation, one or other of those tubules may be divided or torn, and subsequent annoyance may be caused for some days by a flow of saliva through the track of the drainage tube.

The next step is to divide the fascia, muscle, etc., between Stenson's duct and the highest branch of the fascial nerve. The nerve branch and duct being obvious, the masseteric fascia is split horizontally between them over the whole breadth of the muscle. In doing this the branches of the transverse facial artery will probably be wounded; if they are tied at once they will give no further trouble. the fascia is then seized with dissecting forceps, and undermined all round with the back of a knife or some blunt instrument. It has been recognized for some time that if a nerve in its continuity be pulled by a small blunt hook, the point of traction being so narrow many nerve fibres may be seriously damaged, giving rise to subsequent paralysis. It seemed to me that this could be avoided by employing retractors which should have a convex outline towards the structures they were separating, so that the nerve they are drawing aside should slip round them as on a pulley. The concave side being nickelized acts as a reflector, carrying the light to the bottom of the wound. With such retractors, and with the aid of a blunt instrument, the hole in the masseteric fascia can be steadily widened until it is about three centimetres in diameter. The parotid gland should now be retracted towards the ear, so that the finger can freely detect the posterior border of the jaw. The masseter muscle is then to be divided, preferably with scissors, on the jaw for the posterior two-thirds of its extent. The rapid oozing from the branches of the masseteric artery can be stopped at once by the application of a small sponge with some very hot lotion, though the arrest of the bleeding is specially provided for by the pressure of the retractors. The periosteum of the jaw is then peeled off, together with the superjacent muscle, until the finger and the electric light (which is absolutely essential for the success of the operation and should be worn on the forehead) have made perfectly evident the sigmoid notch, the posterior border of the coronoid process and the neck of the jaw.

The small wound in the muscle should then be plugged with a piece of hot dry sponge for a moment while preparations are made for dividing the bone. Now, this division consists practically in extending the sigmoid notch down as low as the upper orifice of the dental foramen. The dental foramen is situated about opposite to the point where the masseteric ridge—which is really, of course, a continuation of the outer border of the neck of the jaw—reaches the middle of the vertical ramus. Although arbitrary measurements are dangerously untrustworthy, it may, perhaps, be better to mention that this point in the adult is usually from 12 to 15 millimetres (measured in the line of the ramus) from the bottom of the sigmoid notch. To prevent possible fracture of the jaw and to aid subsequent division of the same with bone forceps, I think it best to cut out the U-shape required by first marking with the drill the presumptive position of the dental foramen, then carrying up on each side at the proper distance a row of holes, made with a drill, completely but only just penetrating the bone. These holes are best drilled with the central pin of Farabœuf's trephine, and then a small centimetre disc of the jaw should be taken out opposite the foramen. If this be done just at the opening of the foramen the periosteum on the inner side of the jaw appears, and on its division the inferior dental artery comes into view, while lying behind and posterior to it is the inferior dental nerve. If the nerve is not seen at once it is probably just under the posterior border of the trephine opening, and gentle search with the seeker will reveal it. A reliable silk ligature may with advantage be looped around it at this stage. The rest of the bone marked out by the drill holes should next be removed *lege artis*.

The internal maxillary artery giving off the inferior dental branch is now seen, and if it is large and the walls degenerated so that it will not stand much traction it had better be divided between two fine ligatures, and the ends pushed out of the way. A quantity of loose yellow fat is now seen filling the bottom of the wound, and if it interferes with the next step some large lobules of it may be quickly extracted with the dissecting forceps. The inferior dental nerve, secured by the ligature previously passed around it, should now be divided at its lowest part and raised, while the fat, etc., is pushed away

from around it with a conveniently stiff and narrow retractor. In doing this it is traced upwards to the point where it is coming from beneath the external pterygoid muscle. This latter is also to be levered upwards with the retractors, and by this means the nerve can be followed out to within about a centimetre of the foramen ovale. It should then be cut as high as possible and the piece removed. During these manipulations the lingual nerve may have appeared in sight, but as a matter of fact it lies half an inch deeper than the inferior dental, in the line vertical to the ramus, at a point just above the dental foramen, consequently search must be made for fully this depth if it should not have been found before. A large length of it is then removed in the same way as from the inferior dental. A small drainage tube and an absorbent dressing complete the operation.—*British Medical Journal*, Dec. 5, 1891.

**III. Operation for Removal of the Gasserian Ganglion and the Division of the Fifth Nerve behind the Latter.** By VICTOR HORSLEY, F. R. C. S., London. In considering the possibility of relieving cases of inveterate neuralgia where recurrence of the pain had taken place, I thought one might be able to remove the Gasserian ganglion or divide the fifth nerve behind it, and I made, some years ago, dissections to see how far the Gasserian ganglion could be separated from the cavernous sinus. On first exposing the ganglion from the pterygoid fossa and opening the middle fossa of the skull, freely following up the inferior division of the fifth nerve, I found that one could raise the inferior division and so the lower half of the ganglion from its bed in the dura mater without damage to the carotid artery in the canal or to the cavernous sinus, but that when one attempted to strip up the upper half of the ganglion from the cavernous sinus it invariably tore the wall of that cavity. For this reason I believe that the operation of complete removal of the Gasserian ganglion is not possible, but that in the operation which Mr. Rose has subsequently described only a portion of it can be taken away.

Finding this to be the case, I then considered the possibility of dividing the fifth nerve behind the ganglion. It is well known that the fifth nerve enters the dura mater just beneath the edge of the

tentorium, and that it runs afterwards in a small but roomy canal in the dura mater, joining the Gasserian ganglion, which lies in a similar cleft on the upper surface of the petrous bone and on the roof of the carotid canal. Some experiments on the monkey to expose the crura had shown me that it was possible to expose the temporo-sphenoidal lobe, and then, by raising the brain carefully with a broad retractor, to lay bare the floor of the middle fossa of the skull. On trying this on the dead body I found that it was perfectly possible in man also, the only trouble being the small veins which come from the temporo-sphenoidal lobe, and which enter the petrosal sinuses. If these be ruptured the hemorrhage is very free, and although not dangerous to life, nevertheless very effectually hinders the performance of the operation.

This exposure of the temporo-sphenoidal lobe in man I have carried out by making a large temporal flap, starting from the anterior extremity of the zygomatic process, and running upwards to the temporal ridge, following that line and descending along it to the asterion. The temporal muscle, after being separated from the bone, is then best removed, so far as its posterior half is concerned, and then the whole of the squamous portion of the temporal taken away by means of a trephined hole and suitable bone forceps. Anteriorly the middle meningeal artery may be dealt with where exposed, being simply ligatured in the dura mater. The dura mater is then to be opened along the full length of the area of bone removed, and the temporo-sphenoidal lobe thus laid bare. A broad copper retractor, with smooth and everted edges, is then gently slipped underneath the lobe and slowly but steadily raised. The lobe is partly moulded, partly lifted upwards, and the floor of the skull is then easily seen and illuminated with the electric light. The guide to the fifth nerve now is the upper border of the petrous bone. The lobe being raised a little more, the edge of the tentorium will be defined and the point at which the fifth nerve passes beneath it could, in the first case I operated upon, be seen. The position of the canal in which the nerve is lying just above the ganglion must then be estimated, and a small puncturing incision made into it. As it is about a quarter of an inch in diameter, it can be recognized as soon as the puncturing instrument passes into it, and the dura forming

its roof should then be further slit open. The nerve in this way is exposed, and is found to be freely lying in the little passage.

The first case on which I operated in this manner was a patient in whom I had previously removed a portion of the inferior dental and of the infraorbital. The recurrence of pain, for which she then desired further operative relief, began in the auriculo-temporal nerve, the only branch remaining of the inferior division which had not been cut. As the pain, however, also ultimately invaded apparently the stump of the middle division, I thought it best to attempt the operation of dividing the nerve behind the ganglion. The patient had not eaten any solid food for several months, and was not in a good condition to undergo the operation. However, as her state was a very desperate one, I agreed to perform the operation, warning the friends that there might be fatal collapse even on the table. As a matter of fact, the operation presented no special difficulty beyond that of being very tedious. I resected the zygoma in order to have more room, but I feel sure now that that was a useless complication—that it was quite possible to have reached the nerve without it, and I regret having done it, because I think it of course aided in producing the shock which caused a fatal termination to the case. On opening the dura mater the brain bulged moderately into the opening, but as soon as the effect of the shock began to show itself it of course sank. On exposing the nerve in the canal behind the ganglion I passed a small blunt hook around it, and it then occurred to me that the small branch of the basilar artery which accompanies the nerve might give some trouble. I therefore thought one might safely attempt avulsion of the nerve from its attachment to the pons, and on gently drawing on it with a hook this was easily accomplished and without even any noteworthy oozing. The wound was closed in the usual way. Unfortunately the patient never rallied from the operation, and died seven hours afterwards, obviously from shock.—*Brit. Med. Journal*, Dec. 12. 1891.

## HEAD AND NECK.

**I. Tumors of the Jaws Due to Abnormal Development of Teeth.** By DR. HILDEBRAND, of Göttingen.—These are of great variety, and the case cited by the author seems unique in that all three maxillary bones were affected, and to a marked degree.

His patient was a boy of 9 years, who was said to have first presented a swelling of the face one year previously. This was at that time confined to the left side, and six months previously was incised by a local physician, who evacuated a little blood and pus. When seen the upper jaw on each side presented a hard swelling, especially noticeable over the left maxilla. The mouth was exceptionally wide, and on opening it the alveolar processes were seen to be irregularly nodular and thickened. Most of the first teeth had been lost. The right canine was directed nearly forward, back of it one rudimentary molar was seen. On the left side two rudimentary molars were found, together with two similar teeth projecting from the hard palate near the alveolar border. The teeth of the lower jaw were irregular and imperfect. A fistula at the site of the earlier incision was opened, and an opening cut in the anterior wall of the left upper jaw. The entire antrum of Highmore seemed filled with a mass of milk teeth and second teeth, partly free, partly forced in conglomerate masses, and irregularly directed in between these were soft, grayish granulations, cheesy in appearance and fetid in odor.

The antrum was cleaned of its contents. On the opposite side an opening was chiseled in the alveolar process and the right antrum, also filled with conglomerate masses of teeth evacuated, partly at this sitting, partly at a subsequent operation. Both cavities drained.

Some months later the child was again seen. The upper jaws had diminished somewhat in size; there was a persistent fistula at the left cheek.

The lower jaw, in the interval since the first operation had increased noticeably. It was largely distended, especially on the right side, and it was thought that a sharp and nodular prominence could be felt in its thin walls. Incision along its lower border on each side, the body opened and a large space found filled with teeth

and rudiments of teeth similar to those in the superior maxillar already described. Both sides evacuated, leaving cavities the size of hen's eggs, the right being somewhat larger than the left. Drainage, healing.—*Deutsch Zeitsch für Chirg*, Bd. 32, Heft 3 and 4.

**II. Violent Hemorrhages After Tracheotomy.** By DR. ADOLF MAAS (Berlin).—Despite the vast amount of what has been written on the subject of tracheotomy and the condition demanding it, but scanty reference has been made to the severe hemorrhages which at times follow opening of the air passages, or to the source of the bleeding in such accidents. He presents an extensive analysis of 17 cases which are carefully investigated. He differentiates in these cases two chief sources of the bleeding, viz.: That from large vessels about the arch of the aorta and pulmonary hemorrhages. The first may be divided as follows:

(a) Erosion of vessels (left innominate vein) through progressive diphtheritic process; (b) pressure of the lower end of the canula on vessels previously softened by diphtheritic conditions (arteria innominata), and (c) alteration in the vessel walls, probably due to a change of the coats into granulation tissue as seen in a granulating wound (innominate and right carotid arteries).

The cases of pulmonary hemorrhage (11 in all, 7 of which were fatal) showed in some cases broncho pneumonia, while in others no pathological change was discovered.—*Deutsch Zeitsch für Chirg.*, Bd. 31, Heft 3 and 4.

CHARLES A. POWERS, New York.

## CHEST AND ABDOMEN.

**I. Bronchotomy through the Chest Walls for Foreign bodies impacted in the Bronchus.** By DE FOREST WILLARD, M.D., (Philadelphia).—The author reports the result of a number of experiments upon dogs in which an opening was made in the chest wall, one or more ribs excised and the bronchus thus reached either anteriorly or posteriorly. The operations were all fatal, and his conclusions were as follows:

1. The bronchus as in dogs can be reached either anteriorly or posteriorly through the chest walls, but the anatomical position is in such close proximity to large and important structures that safe incision is a matter of extreme difficulty and danger.

2. Bronchotomy through the walls of the thorax is an operation attended with great shock from collapse of the lungs, and until technique is further advanced is liable to result in immediate death.

3. Collapse of the lung is more serious in a healthy organ than in one previously crippled by disease.

4. The serious inherent difficulties are shock, suffocation from lung collapse, enormous risks of hemorrhage from pulmonary vessels, injury of or interference with the pneumogastric, great and fatal delays owing to the exaggerated movement of the root of the lung, caused by the extensive dyspnœa.

5. Closure of the bronchial slit is slow and dangerous. To leave it open causes increasing pneumothorax by its valve action, and also permits the entrance of septic air into the pleural cavity.

6. Although a foreign body can be reached by this route, yet removal is hazardous. To secure a subsequent complete cure seems in the present state of knowledge very problematical.

7. When the presence of a foreign body in the bronchus is definitely determined, and primary voluntary expulsion has not been accomplished, there is great danger in permitting it to remain, even though it may but partially obstruct the tube. The risks of immediate and of subsequent inflammation are serious.

8. Low tracheotomy is then advisable in nearly every case when the presence of a foreign body is certain; it adds but little to the risks and affords easier escape for the object even when extraction is not feasible.

9. Subsequent dangers arise from severe and prolonged instrumentation, not from tracheotomy.

10. Voluntary expulsion is more probable after than before tracheotomy.

11. Tracheotomy is permissible even after an object has been long in position, unless serious lung changes have resulted.



12. The question of tracheotomy will depend largely upon the form, size and character of the foreign body.

13. The term bronchotomy should be limited to an opening of the bronchus and should not be employed to designate higher operations.

14. The risks from thoracotomy and bronchotomy following unsuccessful tracheotomy are much greater than the dangers incurred by permitting the foreign body to remain.—*Author's Abstract.*

**II. Retention Cyst of the Breast.** By Dr. FRITZ CATEN (of Griefswald).—A baby of eight months presented a movable, subcutaneous cystic tumor at the middle line of the sternum. It was the size of a walnut. The mother noticed a lump the size of a pea when the child was 14 days old, this having steadily enlarged. Aspiration withdrew a clear watery fluid which showed, microscopically, only scattered epithelial cells—chemically, only sodium chloride.

The tumor was easily shelled out. The inner surface of the cyst was granular, with atheromatous-like material. Its wall was of connective tissue, without papillæ, but presenting glands with long tubes of exit perfectly corresponding with ordinary sweat glands. The cyst is, therefore, to be regarded as a sweat gland retention cyst, and is of interest because of its exceptional seat.—*Deutsch Zeitsch. für Chirurg. Bd. 31, Heft. 3 and 4.*

CHARLES A. POWERS (New York).

**III. Malignant Disease of the Navel.** By R. T. MORRIS, M. D. (New York).—The author reports four cases which show that when malignant disease occurs in other parts of the body it may appear as a secondary complication at the navel, and the character of the disease at the navel appears to have been the same as that of the malignant disease of other structures in the four cases reported—namely, sarcoma in one case and carcinoma in three cases.

In none of these cases, so far as the author is aware, was there any means for secondary infection except by way of the blood current, for the navels were not in contact with other diseased structures.

In two of the cases omphalo-mesenteric remains were found in the diseased navels, and it is possible that the other two navels which were not examined contained such remains also. The facts as stated

show that in two cases at least the secondary malignant disease occurred at a point particularly rich in embryonic cells, and Cohnheim's theory relative to the development of tumors from latent embryonic cells as a result of irritation is forcibly brought to mind. The causative elements of sarcomatous and of carcinomatous disease apparently found their way through the blood current to the navel in four patients, and the navels of these patients became infected with disease similar in character to that of distant structure in the respective patients.—*Author's Abstract.*

**IV. Femoral and Ventral Hernia in Woman.** By Dr. H. O. MARCY (Boston). The author advocates the dissection of the sac to its very base, which is sutured across and removed. The internal ring is carefully closed by a line of deep, double, continuous tendon sutures. The canal is narrowed and closed in a similar manner, and the wound is sealed with iodoform collodion without drainage. The operation is conducted with the strictest antiseptic care, and since Dr. Marcy was the first to use and publish the advantages to be derived from buried animal sutures, and systematically to extend their applicability in the general field of surgery, we quote his emphatic directions: "There is but one rule, and it cannot be too rigidly enforced—the *aseptic* suture must be *aseptically* applied in *aseptic* structures, and the wound must be maintained *aseptic*. The failure of either of the above-mentioned factors not alone endangers the results, but may be followed by the most serious consequences. Modern surgery demands of the operator every safeguard to ensure an aseptic wound, but he who uses buried animal sutures must take, if possible, even greater precautions, since infection carried into a wound thus firmly closed is for obvious reasons attended with much greater danger than in a wound united by interrupted sutures which, at the end of a few days, are to be removed, and when drainage is relied upon to permit the escape of infective or foreign material. It is in part on account of defective technique, the use of drainage and the too-often septic wound that failure to effect a cure after hernial operations so generally occurs."

The author began to use the buried animal suture in operating for the cure of hernia in 1871, and since that time has for the most part

used it in the closure of all operative wounds, and in all his operations for the cure of femoral hernia, where the integrity of the intestine has not been involved he has never observed any subsequent symptoms indicating danger, and so far as he has been able to learn there has not been a single recurrence. There is little pain, and even œdema of the tissues does not ensue. After a few days in bed the patient is allowed to sit up. In some instances he has permitted the use of the chair the second day without any apparent harm. He never advises the subsequent wearing of a truss." \* \* \* "If it can be demonstrated that femoral hernia is curable, then the advisability of the operation should be taken into consideration, and if it can be proved that the cure remains permanent it adds much to the argument in favor of operative measures, but where it is demonstrated that, under proper precautions, based upon an accurate anatomical knowledge of the structures involved, the operation is not severe, does not cause long detention from active duties, does away with the punishment inflicted by the life-long wearing of a truss, and is almost without danger, there remains no reason why all the sufferers from femoral hernia should not profit by surgical measures, and demand to be restored to the ranks of active service." Dr. Marey makes an equally strong plea in behalf of surgical interference for the cure of sufferers from umbilical and ventral hernia. In umbilical hernia he dissects the peritoneal sac quite within the margin of the ring, sutures it across at its base and resects it. The subsequent steps of the operation are conducted under irrigation. There are conditions when it is wise to resect the ring and close as in an ordinary laparotomy, but the method which Dr. Marey more generally recommends is one quite peculiar to himself. The structures composing the ring are divided laterally upon the plane of the abdominal wall about one-half of an inch in all directions. This admits the coaptation of the sundered parts, and by lines of strong continuous tendon sutures the separated edges are coapted in a way greatly to broaden the united parts. This widens the line of union to an inch or more instead of bringing together the narrow edges of the tendinous ring, and beside affording this great depth to the united parts, it brings together refreshed surfaces in a high state of vitalization, likely to be followed by firm

union. It also admits the joining of the tissues in three distinct layers of strong sutures. As in the other forms of hernia, the skin itself is closed by a line of running or lacing sutures taken from side to side through the deeper portions of the skin only, which admits of its coaptation by sutures entirely hidden from view. Such a wound requires no drainage, and it is permanently sealed with collodion.—*Proceed. Amer. Assoc. Obstet. and Gynecol.*, 1891.

## AUTHOR'S ABSTRACT.

**V. Cholecystotomy (Czerny's Operation).** By DR. WINKELMANN (of Strassburg). After a short review of the various plans proposed for the management of the gall bladder in and after its opening he gives adherence to the ideal operation as set forth by the Heidelberg surgeon, and cites the following illustrative case: A woman of 38 years was admitted to the surgical ward with a tumor the size of a fist, corresponding in all particulars with a distended gall bladder. It was above the navel, a little to the right of the median line—median sections form a point—a finger's breadth below xiphoid process to over three fingers breadth below the umbilicus. From the largely distended gall bladder 300 ccm. of light fluid were withdrawn. A hard mass the size of a finger's joint was felt in the proximal part of the cystic duct. This was with difficulty pushed into the gall bladder, when the viscus was incised, the stone withdrawn, and the bladder wound immediately sutured with silk. The abdominal peritoneum was sewn above and below with silk, and in the small interspace the gall bladder so fastened that the cut in its wall fell to lie immediately below the abdominal gap. Complete closure of the abdominal wound except over a very small area at the site of the sutured viscus. Here an iodoform wick was inserted. Freedom from any peritoneal complication, prompt recovery.—*Deutsch Zeitsch. für Chirurgie*, Bd. 31, Heft. 3 and 4.

CHARLES A. POWERS (New York).

**VI. Echinococcus of the Liver Operated on by Costotomy.** By DR. A. BRUNNICHE (Copenhagen). October 17, 1886, Th. B., a young Icelandic woman, æt. 20, entered the hospital with symptoms which apparently indicated a right-sided tuberculous pleuritis, namely, infiltration of the right apex, change in the voice, sweat, failure of the general nutrition and disturbances of digestion. Examination of the sputa was not then well in vogue in that hospital. As the patient began to have rigors and grow worse, a trial puncture was made without result. In December a greater prominence of the right hypochondrium and epigastrium was noticed, while the anterior border of the liver was felt three inches above the umbilicus. Friction sounds were audible on the right side in the fossa infrascapularis. December 13 a second trial puncture was made in the ninth right intercostal space and a small quantity of purulent fluid drawn off; this was examined under the microscope, but revealed nothing definite. As the diagnosis of empyema was thought certain, cystotomy was performed December 15, and a six centimetre piece removed from the tenth rib in the posterior axillary line. About 1,100 grams of foetid pus were removed which contained large yellowish and gelatinous masses as well as the remainder of a number of torn membranes which presented a distinct stratification and were studded with prominences of the size of a pea. No hooks could be found. The cavity could be felt below as a funnel-shaped hole piercing the smooth surface of the diaphragm. The patient bore the operation well. The purulent discharge diminished, but the wound could not be closed on account of the discharge of bile. The prominence of the right side decreased; several calcareous masses were removed. The patient's appetite and general condition improved, although she constantly lost quite a quantity of bile. The cavity decreased in size, the fistula contracted, the drainage-tube was removed; the patient increased in weight and had naturally colored stools. The fistula finally closed entirely, and the patient was discharged as cured February 23, 1887. The writer cites two similar cases. Firstly, that of Krause (*Sammlung Klinischer Vorträge*, v. R. v. Volkmann, No. 325, 1888), where

a young man, æt. 27, presented an echinococcus cyst situated upon the upper convex surface of the liver necessitating, on account of the upward pushing of the diaphragm, the performance of costotomy and the opening of the cyst through the diaphragm. A drainage tube was inserted and the wound preserved free from irritation or infection, although a large amount of purulent fluid was discharged. Secondly, that of James Israel (*Verhandl. d. d. Gesellschaft f. Chirurgie*, viii, 1879, 1, p. 17), which was treated after Volkmann's method, costotomy, and as it could not be determined whether the diaphragm was adherent to the tumor the wound was tamponed with carbolized gauze for seven days, and finally an incision was made into the cyst through the diaphragm.—*Hospitals-Tidende*, No. 30, 1890.

F. H. PRITCHARD (Boston).

#### GENITO-URINARY ORGANS.

**I. Intra-peritoneal Rupture of the Bladder.** By Prof. P. EDWARD ROSE (of Berlin).—The author is so fortunate as to add to the few cases in which success has followed abdominal section in intra-peritoneal rupture of the urinary bladder. This case is the first in which the open treatment of both vesical and abdominal wounds has been successful.

The patient was a boy of seven years, who was said to have been run over by horses and heavy wagon. Shortly after the accident he complained of severe pain in the abdomen, and was able to urinate only by drops, the water being bloody. In a few hours nausea and vomiting set in, this continuing and being accompanied by unyielding constipation. Two days after the accident he was admitted to the hospital. Temperature sub-normal; pulse 130; mind not wholly clear. Abdomen uniformly distended and sensitive. Dullness in the right lumbar region, these parts being deeply colored by extravasated blood, a small œdematous area just above the pubes. Reden's peritoneal catheter withdrew about 4 oz. of bloody urine. Abdominal section from umbilicus to pubes. On opening the peritoneum about a pint of bloody fluid welled out of the abdomen. The bladder was closely contracted and presented a rent  $\frac{3}{4}$

in. wide at its anterior and upper surface. This rent was not sutured. The space about it was thoroughly washed, a large drain placed in the abdomen on either side, packed about with iodoform gauze. A catheter was introduced into the bladder and left in place.

The urine was passed for the first time by the natural way on the 13th day. The space above and about the bladder gradually filled and contracted, and on the 56th day the abdominal wound was closed. Some weeks later calculi formed in bladder and were successfully removed.—*Deutsch Zeitschr. für Chirurgie*, Bd. 31, Heft 3 and 4.

**II. A Contribution to the Subject of Fatty Tumors in the Scrotum.** By Dr. CARL KOCH (of Nürnberg).—A man of 49 years sought treatment on account of a large serotal tumor. He had never been ruptured and had never noticed a local swelling until two years previously, at which time there seemed to be two small, separate nodules on the cord above the right testis. These increased in size and became a single mass. One year after discovery the tumor was rather larger than a fist, and when seen by K. was an enormous mass, which reached to the knee. It seemed of a soft, elastic consistency, harder in some places than in others. At the site of the external ring it seemed to send a process into the inguinal canal. The skin over it was thinned and distended, but otherwise normal, and was movable. The testis, of normal size, was fixed at the under part of the tumor. The penis was concealed beneath the skin. After division of the cord at the external ring the contents of the right half of the scrotum were removed. The tumor weighed 10 pounds. It was made up of fat lobules, bound with a dense fibrous tissue, and seemed to take its origin from the cord. Prompt recovery.—*Deutsch Zeitschr für Chirurgie*, Bd. 32, Heft 3 and 4.

CHARLES A. POWERS (New York).

**III. On External Urethrotomy.** By Dr. ALEXANDER F. MATVIEFF (Riazan, Russia). The author details five successful cases of external urethrotomy, one of which refers to a peasant of 41, with traumatic rupture of the urethra; another to a soldier of 32, with urethral stricture complicated with extensive urinary infiltration; a third to a peasant of 22, with impermeable stricture; and the

remaining two to peasants of 5 and 22, with urethral calculi. Analyzing the series, the writer lays down the following propositions: 1. External urethrotomy belongs to the category of operative procedures which are very easy in technical regards and do not require any special or complicated instruments. 2. The operation enables the surgeon to successfully cope with such vitally grave complications as urinary infiltration of tissues. 3. In cases of rupture of the urethra the operation constitutes almost the only means for curing the patient. 4. Even in cases of urethral strictures an external urethrotomy should be preferred to an internal one, since (a) the former allows the surgeon to distinctly see what and how he cuts into; and (b) the operation makes superfluous a consecutive dilatation of the channel which is necessary in the case of internal urethrotomy. 5. In cases of foreign bodies in the urethra external urethrotomy should be preferred to a forcible mechanical extraction, since (a) the latter procedure occasionally fails to attain its aim; and (b) it always leaves behind more or less considerable erosions or contusions of the parts.—*Khirurgicheskaja Letopis*, No. 2, 1891, No. 2, p. 151.

VALERIUS IDELSON (Berne).

#### BONES.—JOINTS.—ORTHOPÆDIC.

**On Myositis Ossificans.** By DR. FRITZ CATEN (Greifswald). True ossification takes place in muscle-tissue at a point extending from the periosteum, as hyperproduction of the ossification normally occurring in tendons extending to the muscles, or as new bony formation occurring in the muscles themselves. This latter may or may not have a superficial connection with the periosteum, and is the form, strictly speaking, termed *myositis ossificans*.

Agreement has not yet seemed reached as to the genesis of the process. Recent writers, Ziegler, Boiset, Hirschfeld, and others, dispute the view of Virchow that the process was on the border line between inflammatory and neoplastic, and incline to the belief that it is of the nature of a true tumor. This belief is shared by Cohen, who characterizes the histological condition of the specimens examined by him not



as a chronic inflammation of the muscular tissue going on to ossification, but as a true neoplasm. Of the 4 cases observed by the author in the clinic of Helfrich one is of special interest, in that removal was followed by recurrence. A man of 35 years was kicked on the left thigh by a horse. After ordinary treatment a swelling to size of a fist remained, which, while decreasing in size, increased in hardness. On removal it was found to be adherent to the periosteum of the femur, from which it was removed by the raspator. Recurrence in the rear nine weeks later, and again recurrence after this second removal. As final report was made only a few weeks after the third operation, we are in doubt as to the ultimate result. In view of the recidivity in this case, however, Helfrich's carefully formulated opinion demands especial attention. He avers: 1. That not only the bony swelling but also the entire thickness of the muscle—when anatomically feasible—shall be excised, so that all changed tissues may be removed. 2. That the apparently normal periosteum be excised, at least over an area, 1 cm. distant from the parts involved. 3. That after removal of the periosteum the underlying bone be chiselled away, deeply in the compact tissue. Only through such radical procedure may one be assured against recurrence.—*Deutsche Zeitsch für Chirurgie, Bd. 31, Heft 3 and 4.*

CHAS. A. POWERS (New York).

## REVIEWS OF BOOKS.

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SURGERY: A PRACTICAL TREATISE, WITH SPECIAL REFERENCE TO TREATMENT. BY C. W. MANSELL MOULIN, M. A., M. D. Oxon., F. R. C. S. Assisted by Various Writers on Special Subjects, with 500 illustrations. Philadelphia: P. Blakiston, Son & Co., 1891—pp. 1180.

The ideas advanced by Dr. Moulin in regard to sapræmia septicæmia and pyæmia differ somewhat from those generally held by writers on surgical pathology. For instance, sapræmia is considered due to a non-infecting organism and is caused by the absorption from the surface of a wound of some ptomaine formed during fermentation. Probably the particular variety is not always the same, and certainly putrefaction with the formation of offensive gases is not necessary."

Senn, on the other hand, regards this condition as "a septic intoxication caused by the presence of dead tissue in the body in a state of putrefaction, from the presence of putrefactive bacilli. The immediate cause of the intoxication is the absorption of preformed ptomaines from such a local focus of putrefaction," and the view is further sustained by Roswell Park, who says it is due to a "putrid suppository from which absorption is continuously taking place."

Septicæmia, Moulin considers "an acute specific disease caused by a micro-organism which multiplies in the blood, so that the most minute trace can communicate by inoculation, as in the case of anthrax" while pyæmia is an infective disorder caused by the ordinary pyogenic micro-organisms and distinguished from the other affections to which they give rise by the unusual prominence of some of the clinical and pathological features. It is not a specific disease; there is no evidence that other organisms than the ordinary pyogenic ones, the staphylococci and streptococci, are ever present."

Here the views expressed are decidedly at variance with the generally accepted theories in regard to these conditions that "the difference between septicæmia and pyæmia is not one of toxæmia, but of formal progression of a series of embolic disturbances, which give rise to the formation of metastatic foci and abscesses." Senn declares that septicæmia is "clinically and probably etiologically closely related to pyæmia," while in regard to the bacterial origin of septicæmia this same author says: "This disease can be produced by any of microbes, which, after their introduction into the organism have a capacity to produce a sufficient quantity of phlogistic ptomaines to give rise to septic intoxication." Senn further says of pyæmia, "its occurrence depends upon an extension of a suppurative process from the primary seat of infection and suppuration in different organs by the transportation of emboli infected with pus microbes through the systemic circulation."

There are two views with regard to the pathology of tetanus, one that it is due to an abnormal condition of a peripheral nerve, which either extends directly to the spinal cord or causes general reflex spasms; the other, that it is due to some poison excreted by an animal organism. "Although there is a certain amount of discrepancy, the balance of evidence is distinctly in favor of its being due to a form of bacillus living in moist earth widely distributed and closely associated with the bacillus of putrefaction, so that it is exceedingly difficult to obtain a pure cultivation.

It is considered questionable whether an operation should ever be performed during the continuance of shock. In regard to primary amputation, it is considered best to stop the hemorrhage, prevent decomposition by wrapping the limb in a dressing saturated with a strong solution of corrosive sublimate and wait until reaction is fully established. When in this condition an operation will almost certainly prove fatal, and even when reaction is commencing the same result is highly probable." An exception to this rule is taken in wounds of the abdomen with hemorrhage. When operation must be undertaken without delay, chloroform given in small quantities is considered equally safe with ether in this condition. In the treatment the main reliance seems to be placed in the natural, almost un-

aided recuperative powers of the patient. Heat is advocated with small quantities of stimulants at half-hour intervals. Ammonia and ether may be employed by hypodermic, if necessary, but digitalis strychnia "and other drugs from which much was expected, have all proven fallacious." The author has apparently overlooked the beneficial results obtained from large doses of strychnia and nitro-glycerine. In his condemnation of transfusion, which he says "in cases uncomplicated with hemorrhage is of very little use," he must have fallen into the common error of using too small an amount of fluid and not making certain that the heart is supplied with a sufficient quantity of circulating medium to make up for the loss due to the distension of the arterioles and consequent increase in blood throughout the systemic circulation until the nervous system reasserts itself and vaso-motor control is once again established.

In the treatment of varicose veins the palliative and radical methods are both described. Little confidence is placed upon any permanent benefit following palliative measures. The ordinary silk elastic, compressing anklets or stockings are condemned, and preference is given to bandages of thin flannel, donet or perforated rubber, "as they can be put on with just sufficient pressure."

In the radical methods of treatment preference is given to excision over acupressure or ligation, and where the involvement is so extensive as to contraindicate excision of the whole of the varicose vein and its branches, excision of the isolated tumors is advocated. The other two methods are, however, detailed, and may be employed in certain cases. The necessity of subcutaneous incision of the vein between the pins or ligatures may be questionable, although it undoubtedly increased the certainty of the cure without materially increasing the difficulties of the procedures.

Of the methods of producing coagulation in aneurisms by means of the introduction of foreign bodies into the sac, iron wire he thinks seems to afford the best prospect of success, and adds that inasmuch as it has only been employed in desperate cases of internal aneurism it should not "be judged too harshly;" but although it has been partially successful, "it cannot be recommended until all other methods have been exhausted." It is suggested that since in Loretta's case, the

uncommon among relapsed cases ; but the necessity for these operations would not arise if they were properly attended to in infancy."

The advantages of the immovable as compared with the movable dressing in fractures would be very great were it not for the one disadvantage of inspection of the parts being impossible. The possibility of overcoming this danger by the use of a pad of cotton wool surrounding the limb is considered, but the cutting down of the apparatus or its application in two parts is probably preferable.

The advantages of this method of treatment are decided—reduction is immediate ; there is no spasmodic contraction ; the extravasation is kept within bounds ; blebs cannot form, and a check is placed upon the inflammatory swelling. But the pads must fit accurately and be thick enough ; the pressure must be soft and perfectly uniform, and the case must be in at least two pieces, so that it can be removed easily and at once if there is any fear of congestion or any need for readjustment. This treatment is not advocated for fractures of the femur unless they are the transverse fractures of childhood or infancy.

The same objection may be urged to this plan as to the various open plaster splints. They require more time in their application and a greater amount of experience and manual dexterity.

In compound fractures it is advocated to change the wound into a surgical one as soon as possible. This, however, is not sufficiently emphatic ; too much latitude has been given here and too much stress laid upon the possibility of the wound being such as to prevent union. If the wound in the skin is enlarged, and contused and lacerated tissues removed, it is undoubtedly possible, in a vast number of cases, to reduce the condition to one favorable for primary union under ordinary circumstances, and there is no reason why such injuries should not be treated in the same way as any other injury involving the soft parts. It is to be hoped that in the next edition of this work, and it will reach another edition, this section will be rewritten and this more rational method advocated more earnestly.

The abscesses of hip disease should be opened and drained exactly as abscesses in other parts of the body. In this, as in other points in orthopædic practice, the advice differs radically from that

given and followed, with good results, by several of our leading specialists. But there can be but little doubt that from the general surgeon's standpoint, at least, all principles of treatment point in this direction. Often hectic and amyloid degeneration may be prevented if these regions are only treated according to accepted surgical rules, and it is a well recognized fact that these advocates of an ultra-conservative course of treatment find many instances of amyloid degeneration among their best cases.

In the treatment of tubercular diseases the injection with iodoform emulsion is suggested but deprecated in consequence of the dangers of iodoform poisoning. There seems to be but little danger from poisoning if care is taken to apply the well-known tests for the drug, and its beneficial effects in tubercular lesions seems undeniable.

In cases of compression of the brain from hemorrhage of the middle meningeal artery trephining is advocated. Ligation of the external carotid has not been done often enough for the relief of this condition to recommend the measure.

The following limitations are thrown around operations for intracranial tumors: "Localization must be very exact; the site must be accessible; the size of the tumor must not be too great, or the lesion left may be practically as bad, and there must be no other growth or disease." "Success is naturally more probable when the tumor is surrounded by a capsule than when it is of an infiltrating nature, but this is rarely possible to determine beforehand." The replacing of the whole button of bone or of small pieces is advocated.

Morton's method of treating spina bifida is preferred. "Excision of the sac is only successful in cases of simple meningocele, but as it is impossible to prove that the spinal cord is not involved in the sac this operation should very rarely be undertaken." In cases of fracture of the spine by indirect violence operation offers little or no hope, but in those produced by direct violence the disability may be caused by a simple and slight compression of the depressed laminae, and in these cases operation should undoubtedly be performed at once.

In abscess accompanying spinal caries incision should be performed "early and freely." Leaving them only enables them to become larger and more complex in shape and an imperfect incision is a premium on putrefaction. Aspiration is of little service. If the interior of the abscess is of any size and irregular in shape, it should be opened into every pouch, that it may be not only successfully emptied of its contents but kept empty. If this abscess is thoroughly drained all the parts will heal up to a single sinus leading directly down to the diseased bone. The interior should be explored with the finger to ascertain, as far as possible, its extent and whether the disease which has given rise to it is within reach of treatment, but it should not be scraped out for fear of hemorrhage and of damaging important structures running in the wall or across the cavity, or washed out with antiseptics; then a very large drainage tube should be inserted, or, if necessary, more than one, and absorbent dressings applied."

Psoas abscesses should always be opened in the lumbar region as well as in Scarpa's triangle. Macewen's cases of laminectomy are the only ones referred to, and the operation is advocated in cases that follow Macewen's rule. Later statistics have modified these restrictions and enlarged the field of operation. Thorburn's statistics are quoted in considering the general questions of trephining the spine, without comment.

The term appendicitis is not recognized, but in its place the old uncertain method of grouping all the inflammations of the appendical region under the name of perityphlitis is retained. The importance of this condition is not emphasized, and McBurney's point, as a means of arriving at a diagnosis, is ignored. In the treatment the incision through the abdominal wall parallel to Poupart's ligament is advised. Aspiration in these cases is not condemned severely enough, and apparently the author was ignorant of the important data collected by numerous surgeons in this country on the pathology, symptomatology and treatment of this condition. This is the only part of the work, except the chapter on intestinal surgery, where lateral anastomosis is overlooked, that deserves condemnation. Both these portions of the work are incomplete and

misleading, and must be completely rewritten to enable them to furnish any information of value, either to the student or practitioner.

The proof-reader has at times nodded throughout the book so that a number of misprints appear, some of which might be misleading, as, for instance, partial incision, when excision is intended.

The book as a whole deserves hearty commendation and a wide circulation.

SAMUEL LLOYD.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by CHARLES E. SAJOUS, M. D. Philadelphia: F. A. Davis, 1891.

The *Annual of the Universal Medical Sciences*, for 1891, is at hand. The amount of work represented in its pages is enormous, involving, as stated on the title-page, the services of two hundred and seventy associate editors and collaborators in addition to the editor-in-chief, Dr. Sajous. With the latter rests the responsibility and the credit. It is no small thing to give abstracts of all notable papers, home and foreign, which appear during the year, in every branch of medical science. Yet this is the undertaking, and of more importance, it is accomplished.

The five volumes of the *Annual* furnish just what every reading physician desires, and would do for himself if time permitted, at least in the particular branches which are of most interest to him. In view of the volume of medical writing which is in circulation, this is an impossible undertaking. One should therefore be grateful to have it done for him on the coöperative plan by gentlemen abundantly competent for such tasks, and whose respective judgments are sufficiently matured to separate the gold from the worthless matrix.

Volume III., as giving the results of a year's work in surgery, is of especial interest.

Surgery of the Brain, Spinal Cord and Nerves, in charge of John W. Packard, embraces fifty-four pages. Linear Craniotomy is the most striking and radical of proposed and executed operative measures under this heading. Operations for tumor and abscess of the brain, intra-cranial hemorrhage, and epilepsy are abstracted in startling



numbers, each case sufficiently reported to enable the reader to understand the indications for and the character of the operation. Fractures and other injuries of the cranial bones receive due notice. The surgery of the spine is enlarging, as evidenced by reports of cases. Under surgery of nerves some very interesting instances of successful nerve grafting appear. In one of these cases two and one-half inches of median nerve was, from an amputated arm, used to fill the gap left in another median nerve by the removal of a tumor.

The section on Thoracic Surgery contains some interesting abstracts of cases and discussions. Penetrating wounds, foreign bodies in the air passages, operative measures for pleural effusions, and pneumonotomy are quoted in sufficient numbers to furnish profitable reading.

As usual, a large number of papers on Abdominal Surgery have appeared and have been thoroughly epitomized by J. E. Mears. The surgical treatment of peritonitis, both septic and tuberculous, is illustrated by a number of cases. Plastic operations on the stomach and intestines are multiplying with some brilliant results. This section is pretty thoroughly illustrated, mainly with reference to newly-devised plates for enterostomy and resection of the intestine. An interesting condensation, well illustrated, of Godlee's lectures on Hepatic Abscess appears. A proper amount of space is allotted to the surgery of the pancreas and spleen and to the operative treatment of hernia.

The *résumé* of Diseases of the Rectum and Anus, under C. B. Kelsey, is devoted mainly to the formation and closure of artificial anus, fecal fistulæ, and the surgical treatment of extensive prolapse of the rectum.

Surgical Diseases of the Genito-Urinary Apparatus in the Male, in charge of E. L. Keyes, deals in the main with details of old methods, showing a marked tendency to employ antiseptic methods in this department. Supra-pubic cystotomy evidently grows in favor, and litholopaxy in children shows great advance.

J. W. White claims forty-four pages for items and papers relating to syphilis. Half the space is devoted to Orthopædic Surgery, by L. A. Sayre. P. S. Connor provides the section on Amputations, Excisions, and Plastic Surgery, together with Diseases of Bones and

Joints. Fractures and Dislocations, by L. A. Stimson, and Diseases and Injuries of Arteries and Veins, under J. H. Packard, are next in order. There has evidently been unusual activity in Oral and Facial Surgery, if one may judge from the amount of space, seventy-six pages, reserved for the abstracts in this line by R. Matas. A catalogue of the remaining sections must suffice, which runs thus: Surgical Diseases, by L. McL. Tiffany; Traumatic Neuroses, by E. C. Seguin; Surgical Dressings and Antiseptics, by J. H. Packard; and Anæsthetics, by J. M. Barton.

The valuable indices to each volume, supplied by C. L. Witherstine, should not be forgotten.

In fine, the plan is large and comprehensive; the execution admirable; the result well worth having, and the editor-in-chief is to be congratulated.

GLENTWORTH REEVE BUTLER, M. D.